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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,469	09/22/2003	Vicente V. Cavanna	10030875-1	2941

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EXAMINER
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TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2112

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary  
for Applications  
Under Accelerated Examination**

Application No.

10/668,469

Applicant(s)

CAVANNA ET AL.

Examiner

Joseph D. Torres

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2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Since this application has been granted special status under the accelerated examination program,  
NO extensions of time under 37 CFR 1.136(a) will be permitted and a **SHORTENED STATUTORY PERIOD FOR  
REPLY IS SET TO EXPIRE:**

**ONE MONTH OR THIRTY (30) DAYS, WHICHEVER IS LONGER,**  
FROM THE MAILING DATE OF THIS COMMUNICATION – if this is a non-final action or a *Quayle* action.  
(Examiner: For **FINAL** actions, please use PTOL-326.)

The objective of the accelerated examination program is to complete the examination of an application within twelve months from the filing date of the application. Any reply must be filed electronically via EFS-Web so that the papers will be expeditiously processed and considered. If the reply is not filed electronically via EFS-Web, the final disposition of the application may occur later than twelve months from the filing of the application.

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2007.  
2) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 3) ☒ Claim(s) 2-14, 16-18 and 20 is/are pending in the application.  
3a) Of the above claim(s) 16-18 is/are withdrawn from consideration.  
4) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
5) ☒ Claim(s) 2, 7, 8, 11-14 and 20 is/are rejected.  
6) ☒ Claim(s) 3-6, 9 and 10 is/are objected to.  
7) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 8) ☐ The specification is objected to by the Examiner.  
9) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
10) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 11) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
• See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I (claims 2-14 and 20) in the reply filed on 10/03/2006 is acknowledged.

Claims 16-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/03/2006.

### *Response to Arguments*

2. Applicant's arguments filed 03/06/2007 have been fully considered but they are not persuasive.

The Applicant contends, "Wong et al. does not disclose adjusting any remainder based on the number of trailing zeroes in systematic code  $D(x)$ . Accordingly, amended claim 2 is patentable over the combination of Dravida et al. and Wong et al".

The Examiner disagrees and asserts that Equation 12 in col. 4 of Dravida teaches generating the CRC  $R(x)$  for the composite sub-message based on adjusted versions of the first and the second remainders,  $R'(x)$  and  $R''(x)$  based on message polynomial  $M(x)$  in equation 11. Wong, in an analogous art, teaches that a message  $M(x) = D(x)$  in col. 3, lines 51-67 of Wong includes  $n-k$  trailing zeroes required to generate an  $n$ -bit codeword from a  $k$ -bit message where  $n > k$ . Since  $r_i(x)$  in Dravida is adjusted to produce

$R'(x)$  for all message bits in  $M(x) = D(x)$ , it is also adjusted based on the number,  $n-k$ , of trailing zeros in the composite sub-message. Together, Dravida et al. and Wong et al. teach each and every element of claim 2.

The Examiner disagrees with the applicant and maintains all rejections of claims 2-14 and 20. All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 2-14 and 20 are not patentably distinct or non-obvious over the prior art of record in view of the references, Dravida; Subrahmanyam (US 5282214 A) in view of Wong; Wing Tak Kenneth (US 6044482 A) as applied in the last office action, filed 12/05/2006. Therefore, the rejection is maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 2, 7, 8, 11-14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dravida; Subrahmanyam (US 5282214 A) in view of Wong; Wing Tak Kenneth (US 6044482 A).

35 U.S.C. 103(a) rejection of claims 2 and 20.

Dravida teaches generating a first remainder based on the sub-message data and a first factor of the CRC generating polynomial ( $r_i(x)$  in Equation 20 in col. 5 of Dravida for some  $i < k-1$  is a first remainder calculated from sub-message data  $A_{k-1-i}$  of message  $M(x)$  in Equation 14 in col. 4 of Dravida using first factor  $f(x)$  of the CRC generating polynomial  $G(x)$  in Equation 4 of col. 3 in Dravida); generating a second remainder based on the sub-message data and a second factor of the CRC generating polynomial ( $t_i(x)$  for some  $i < k-1$  in Equation 30 in col. 6 of Dravida is a second remainder based on the sub-message data and a second factor  $1+x$  of the CRC generating polynomial  $G(x)$  in Equation 4 of col. 3 in Dravida; Note: Equation 21 teaches that  $C_i(x)$  is calculated based on sub-message data  $A_{k-1-i}$  and since  $t_i(x)$  is calculated based on  $C_i(x)$ ,  $A_{k-1-i}$  is also the basis for calculating  $t_i(x)$ ); and generating the CRC for the composite sub-message based on adjusted versions of the first and the second remainders (Equation 12 in col. 4 of Dravida teaches generating the CRC  $R(x)$  for the composite sub-message based on adjusted versions of the first and the second remainders,  $R'(x)$  and  $R''(x)$ ; Note: col. 6, lines 37-39 in Dravida teach that  $R'(x)$  is an adjusted version of first remainder  $r_i(x)$  for some  $i < k-1$  corresponding to the final  $r_{k-1}(x)$  in Equation 26 in col. 5

of Dravida and  $R''(x)$  is an adjusted version of first remainder  $t_i(x)$  for some  $i < k-1$  corresponding to the final  $t_{k-1}(x)$  in Equation 26 in col. 5).

However Dravida does not explicitly teach the specific use of adjusting at least one of the first and the second remainders based on the number,  $n-k$ , of trailing zeros in the composite sub-message.

Wong, in an analogous art, teaches that a message  $M(x) = D(x)$  in col. 3, lines 51-67 of Wong includes  $n-k$  trailing zeroes required to generate an  $n$ -bit codeword from a  $k$ -bit message where  $n > k$ . Since  $r_i(x)$  in Dravida is adjusted to produce  $R'(x)$  for all message bits in  $M(x) = D(x)$  it is also adjusted based on the number,  $n-k$ , of trailing zeros in the composite sub-message

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dravida with the teachings of Wong by including use of adjusting at least one of the first and the second remainders based on the number,  $n-k$ , of trailing zeros in the composite sub-message. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of adjusting at least one of the first and the second remainders based on the number,  $n-k$ , of trailing zeros in the composite sub-message would have provided  $n-k$  trailing zeroes required to generate an  $n$ -bit codeword from a  $k$ -bit message where  $n > k$ .

35 U.S.C. 103(a) rejection of claims 7 and 8.

Equations 20, 26, 30 and 33 in columns 5 and 6 of Dravida.

35 U.S.C. 103(a) rejection of claim 11.

See Figure 5 in Dravida where generating the CRC,  $R(x)$ , comprises mapping the adjusted versions of the first and the second remainders,  $R'(x)$  and  $R''(x)$ , to a corresponding CRC,  $R(x)$ .

35 U.S.C. 103(a) rejection of claim 12.

See Combinational Logic block 104 in Figure 1 and 5 of Dravida using combinational logic to map the first and the second remainders,  $R'(x)$  and  $R''(x)$ , to a corresponding CRC,  $R(x)$ .

35 U.S.C. 103(a) rejection of claims 13 and 14.

Col. 2, line 47-68 in Dravida. Note: a primitive polynomial is inherently irreducible.

***Allowable Subject Matter***

4. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

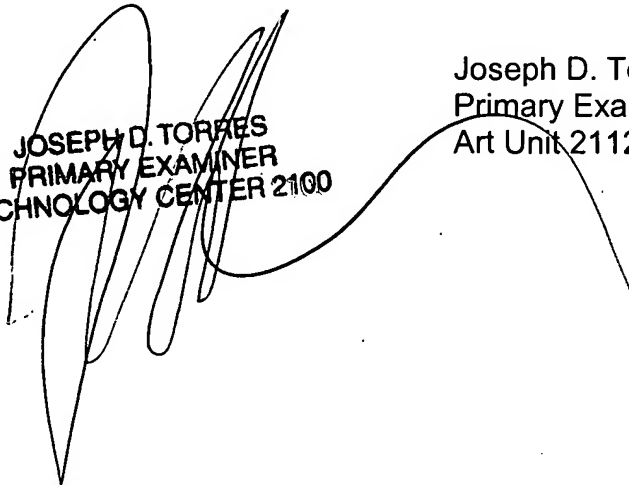
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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